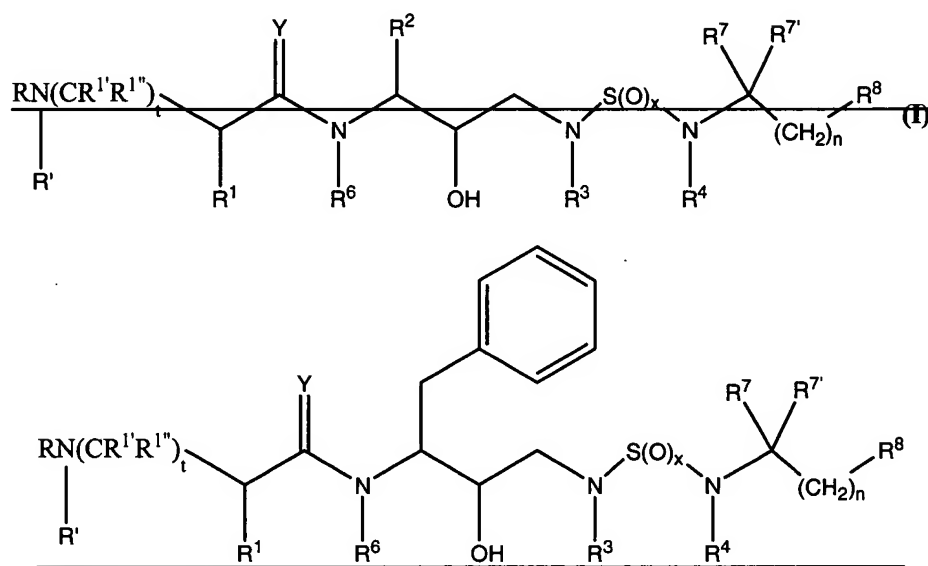


This Listing of Claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

Claim 1 (currently amended): A compound represented by the formula:



or a pharmaceutically acceptable salt, prodrug or ester thereof wherein:

R represents hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, aralkyl, alkoxy carbonyl, alkoxy carbonyl, aryloxyalkyl, heteroaryloxyalkyl, aralkoxy carbonyl, alkyl carbonyl, cycloalkyl carbonyl, cycloalkyl alkoxy carbonyl, cycloalkyl kanoyl, alkanoyl, aralkanoyl, aroyl, aryloxy carbonyl, aryloxy carbonyl alkyl, aryloxy alkanoyl, heterocyclyl carbonyl, heterocyclyloxy carbonyl, heterocyclyl alkanoyl, heterocyclyl alkoxy carbonyl, heteroaralkanoyl, heteroaralkoxy carbonyl, heteroaryloxy carbonyl, heteroaroyl, hydroxyalkyl, aminocarbonyl, aminoalkanoyl, and mono- and disubstituted aminocarbonyl and mono- and

disubstituted ~~aminoalkanoyl~~ aminoalkanoyl radicals wherein the substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, heterocycloalkalkyl radicals, or wherein said aminocarbonyl and aminoalkanoyl radicals are disubstituted, said substituents along with the nitrogen atom to which they are attached form a heterocycloalkyl or heteroaryl radical;

R' represents hydrogen, radicals as defined for R³ or R''SO₂— wherein R'' represents radicals as defined for R³; or R and R' together with the nitrogen to which they are attached represent heterocycloalkyl and heteroaryl radicals;

R¹ represents hydrogen, ~~—CH₂SO₂NH₂, —CH₂CO₂CH₃, —CO₂CH₃, —CONH₂, —CH₂C(O)NHCH₃, —C(CH₃)₂(SH), —C(CH₃)₂(SCH₃), —C(CH₃)₂(S[O]CH₃), —C(CH₃)₂(S[O]₂CH₃),~~ alkyl, haloalkyl, alkenyl, alkynyl and cycloalkyl radicals, and amino acid side chains selected from ~~asparagines~~ asparagine, S-methyl cysteine and methionine and the sulfoxide (SO) and sulfone (SO₂) derivatives thereof, isoleucine, allo-isoleucine, alanine, leucine, tert-leucine, phenylalanine, ornithine, histidine, norleucine, glutamine, threonine, glycine, allo-threonine, serine, o-alkyl serine, aspartic acid, beta-cyanoalanine and valine side chains;

R¹ R^{1'} and R^{1''} independently represent hydrogen and radicals as ~~define~~ defined for R¹, or one of R^{1'} and R^{1''}, together with R¹ and the carbon atoms to which R¹, R^{1'} and R^{1''} are attached, represent a cycloalkyl radical;

~~R² represents alkyl, aryl, cycloalkyl, cycloalkylalkyl and aralkyl radicals, which radicals are optionally substituted with a group selected from alkyl and halogen radicals, NO₂, CN,~~

~~CF_3 , OR^9 and SR^9 , wherein R^9 represents hydrogen and alkyl radicals, and halogen radicals;~~

R^3 represents alkyl, haloalkyl, alkenyl, alkynyl, hydroxyalkyl, alkoxyalkyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, heterocycloalkylalkyl, aryl, aralkyl, heteroaralkyl, aminoalkyl and mono- and disubstituted aminoalkyl radicals, wherein said substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, and heterocycloalkylalkyl radicals, or in the case of a disubstituted aminoalkyl radical, said substituents along with the nitrogen atom to which they are attached, form a heterocycloalkyl or a heteroaryl radical, and thioalkyl, alkylthioalkyl and arylthioalkyl radicals and the sulfone and sulfoxide derivatives thereof;

R^4 represents hydrogen and radicals as defined by R^3 ;

R^6 represents hydrogen and alkyl radicals;

R^7 and $\text{R}^{7'}$ independently represent hydrogen and radicals as defined for R^3 ; amino acid side chains selected from the group consisting of valine, isoleucine, glycine, alanine, allo-isoleucine, ~~asparagines~~ asparagine, leucine, glutamine, and t-butylglycine; radicals represented by the formulas $-\text{C}(\text{O})\text{R}^{16}$, $-\text{CO}_2\text{R}^{16}$, $-\text{SR}^{16}$, $-\text{CONR}^{16}\text{R}^{17}$, $-\text{CF}_3$ and $-\text{NR}^{16}\text{R}^{17}$; or R^7 and $\text{R}^{7'}$ together with the carbon atom to which they are attached form a cycloalkyl radical;

R^8 represents cyano, hydroxyl, alkyl, alkoxy, cycloalkyl, aryl, aralkyl, heterocycloalkyl and heteroaryl radicals and radicals represented by the formulas $-\text{C}(\text{O})\text{R}^{16}$, $-\text{CO}_2\text{R}^{16}$, $-\text{SO}_2\text{R}^{16}$,

$-\text{SR}^{16}$, $-\text{CONR}^{16}\text{R}^{17}$, $-\text{CF}_3$ and $-\text{NR}^{16}\text{R}^{17}$;

wherein R^{16} and R^{17} independently represent hydrogen and radicals as defined for R^3 , or R^{16} and R^{17} together with a the nitrogen to which they are attached in the formula $\text{NR}^{16}\text{R}^{17}$ represent heterocycloalkyl and heteroaryl radicals;

x represents 1 or 2;

n represents an integer of from 0 to 6;

t represents either 0, 1 or 2; and

yY represents O, S and NR^{15} wherein R^{15} represents hydrogen and radicals as defined for R^3 .

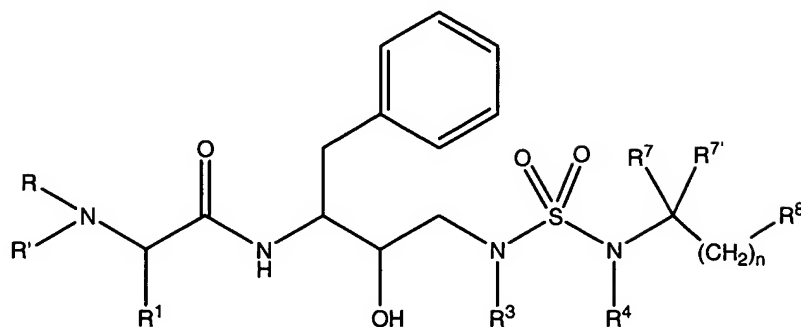
Claims 2-42 (canceled)

Claim 43 (new): A pharmaceutical composition comprising the compound of claim 1 and a pharmaceutically acceptable carrier.

Claim 44 (new): A method of treating a retroviral infection comprising administering an effective amount of the composition of claim 43.

Claim 45 (new): The method of claim 44 wherein the retroviral infection is an HIV infection.

Claim 46 (new): A compound represented by the formula:



wherein:

R represents hydrogen, alkyl, alkenyl, cycloalkyl, hydroxyalkyl, aryl, aralkyl, aryloxyalkyl, heteroaryloxyalkyl, alkoxycarbonyl, alkoxyalkyl, aralkoxycarbonyl, alkylcarbonyl, cycloalkylcarbonyl, cycloalkylalkoxycarbonyl, cycloalkylalkanoyl, alkanoyl, aralkanoyl, aroyl, aryloxycarbonyl, aryloxycarbonylalkyl, aryloxyalkanoyl, heterocyclylcarbonyl, heterocyclyloxycarbonyl, heterocyclylalkanoyl, heterocyclylalkoxycarbonyl, heteroaralkanoyl, heteroaralkoxycarbonyl, heteroaryloxycarbonyl, heteroaroyl, aminocarbonyl, aminoalkanoyl, and mono- and disubstituted aminocarbonyl and mono- and disubstituted aminoalkanoyl radicals wherein the substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, heterocycloalkyl radicals, or where said aminoalkanoyl radical is disubstituted, said substituents along with the nitrogen atom to which they are attached form a heterocycloalkyl or heteroaryl radical;

R' represents hydrogen and radicals as defined for R³, or R and R' together with the nitrogen to

which they are attached represent heterocycloalkyl and heteroaryl radicals;

R¹ represents hydrogen, -CH₂SO₂NH₂, -CH₂CO₂CH₃, -CO₂CH₃, -CONH₂, -CH₂C(O)NHCH₃, -C(CH₃)₂(SH), -C(CH₃)₂(SCH₃), -C(CH₃)₂(S[O]CH₃), -C(CH₃)₂(S[O]₂CH₃), alkyl, haloalkyl, alkenyl, alkynyl and cycloalkyl radicals, and amino acid side chains selected from asparagine, S-methyl cysteine and methionine and the sulfoxide (SO) and sulfone (SO₂) derivatives thereof, isoleucine, allo-isoleucine, alanine, leucine, tert-leucine, phenylalanine, ornithine, histidine, norleucine, glutamine, threonine, glycine, allo-threonine, serine, O-methyl serine, aspartic acid, beta-cyanoalanine and valine side chains;

R³ represents alkyl, haloalkyl, alkenyl, alkynyl, hydroxyalkyl, alkoxyalkyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, heterocycloalkylalkyl, aryl, aralkyl, heteroaralkyl, aminoalkyl and mono- and disubstituted aminoalkyl radicals, wherein said substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, and heterocycloalkylalkyl radicals, or in the case of a disubstituted aminoalkyl radical, said substituents along with the nitrogen atom to which they are attached, form a heterocycloalkyl or a heteroaryl radical, and thioalkyl, alkylthioalkyl and arylthioalkyl and the sulfone and sulfoxide derivatives thereof;

R⁴ represents hydrogen and radicals as defined by R³;

R⁷ and R^{7'} independently represent radicals as defined for R³ and amino acid side chains selected from the group consisting of valine, isoleucine, glycine, alanine, allo-isoleucine, asparagine,

leucine, glutamine, and t-butylglycine or R^7 and $R^{7'}$ together with the carbon atom to which they are attached form a cycloalkyl radical;

R^8 represents cyano, hydroxyl, alkyl, alkoxy, cycloalkyl, aryl, aralkyl, heterocycloalkyl and heteroaryl radicals and radicals represented by the formulas $-C(O)R^{16}$, $-CO_2R^{16}$, $-SO_2R^{16}$, $-SR^{16}$, $-CONR^{16}R^{17}$, $-CF_3$ and $-NR^{16}R^{17}$;

wherein R^{16} and R^{17} independently represent hydrogen and radicals as defined for R^3 , or R^{16} and R^{17} together with the nitrogen to which they are attached in the formula $NR^{16}R^{17}$ represent heterocycloalkyl and heteroaryl radicals; and

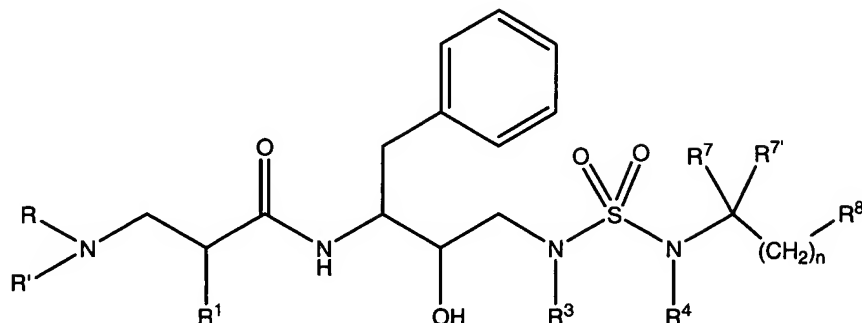
n represents an integer of from 0 to 6.

Claim 47 (new): A pharmaceutical composition comprising the compound of claim 46 and a pharmaceutically acceptable carrier.

Claim 48 (new): A method of treating a retroviral infection comprising administering an effective amount of the composition of claim 47.

Claim 49 (new): The method of claim 48 wherein the retroviral infection is an HIV infection.

Claim 50 (new): A compound represented by the formula:



wherein:

R represents hydrogen, alkyl, alkenyl, cycloalkyl, aryl, aralkyl, aryloxyalkyl, heteroaryloxyalkyl, hydroxyalkyl, alkoxycarbonyl, aralkoxycarbonyl, alkylcarbonyl, cycloalkylcarbonyl, cycloalkylalkoxycarbonyl, cycloalkylalkanoyl, alkanoyl, aralkanoyl, aroyl, aryloxycarbonyl, aryloxycarbonylalkyl, alkoxyalkyl, aryloxyalkanoyl, heterocyclylcarbonyl, heterocycliloxycarbonyl, heterocyclylalkanoyl, heterocyclylalkoxycarbonyl, heteroaralkanoyl, heteroaralkoxycarbonyl, heteroaryloxycarbonyl, heteroaroyl, aminocarbonyl, aminoalkanoyl, and mono- and disubstituted aminocarbonyl and mono- and disubstituted aminoalkanoyl radicals wherein the substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, heterocycloalkyl radicals, or where said aminoalkanoyl radical is disubstituted, said substituents along with the nitrogen atom to which they are attached form a heterocycloalkyl or heteroaryl radical;

R' represents hydrogen and radicals as defined for R³ or R and R' together with the nitrogen to which they are attached represent heterocycloalkyl and heteroaryl radical;

R¹ represents hydrogen, -CH₂SO₂NH₂, -CH₂CO₂CH₃, -CO₂CH₃, -CONH₂, -CH₂C(O)NHCH₃, -C(CH₃)₂(SH), -C(CH₃)₂(SCH₃), -C(CH₃)₂(S[O]CH₃), -C(CH₃)₂(S[O]₂CH₃), alkyl, haloalkyl, alkenyl, alkynyl and cycloalkyl radicals, and amino acid side chains selected from asparagine, S-methyl cysteine and methionine and the sulfoxide (SO) and sulfone (SO₂) derivatives thereof, isoleucine, allo-isoleucine, alanine, leucine, tert-leucine, phenylalanine, ornithine, histidine, norleucine, glutamine, threonine, glycine, allo-threonine, serine, aspartic acid, beta-cyano alanine and valine side chains;

R³ represents alkyl, haloalkyl, alkenyl, alkynyl, hydroxyalkyl, alkoxyalkyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, heterocycloalkylalkyl, aryl, aralkyl, heteroaralkyl, aminoalkyl and mono- and disubstituted aminoalkyl radicals, wherein said substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, and heterocycloalkylalkyl radicals, or in the case of a disubstituted aminoalkyl radical, said substituents along with the nitrogen atom to which they are attached, form a heterocycloalkyl or a heteroaryl radical, and thioalkyl, alkylthioalkyl and arylthioalkyl radicals and the sulfone and sulfoxide derivatives thereof;

R⁴ represents hydrogen and radicals as defined for R³;

R⁷ and R^{7'} independently represent radicals as defined for R³ and amino acid side chains selected from the group consisting of valine, isoleucine, glycine, alanine, allo-isoleucine, asparagine,

leucine, glutamine, and t-butylglycine or R^7 and $R^{7'}$ together with the carbon atom to which they are attached form a cycloalkyl radical;

R^8 represents cyano, hydroxyl, alkyl, alkoxy, cycloalkyl, aryl, aralkyl, heterocycloalkyl and heteroaryl radicals and radicals represented by the formulas $-C(O)R^{16}$, $-CO_2R^{16}$, $-SO_2R^{16}$, $-SR^{16}$, $-CONR^{16}R^{17}$, $-CF_3$ and $-NR^{16}R^{17}$;

wherein R^{16} and R^{17} independently represent hydrogen and radicals as defined for R^3 , or R^{16} and R^{17} together with the nitrogen to which they are attached in the formula $NR^{16}R^{17}$ represent heterocycloalkyl and heteroaryl radicals; and

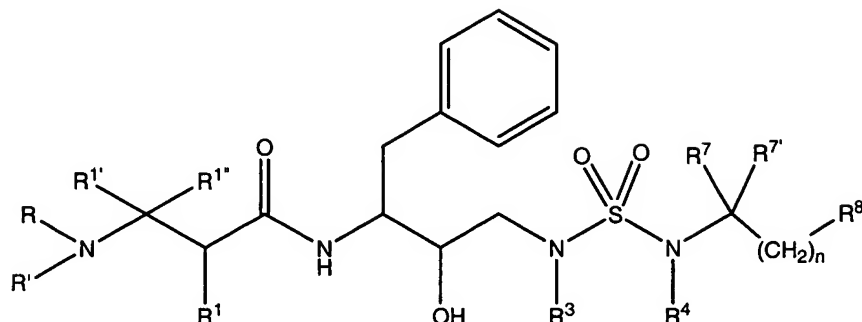
n represents an integer of from 0 to 6.

Claim 51 (new): A pharmaceutical composition comprising the compound of claim 50 and a pharmaceutically acceptable carrier.

Claim 52 (new): A method of treating a retroviral infection comprising administering an effective amount of the composition of claim 51.

Claim 53 (new): The method of claim 52 wherein the retroviral infection is an HIV infection.

Claim 54 (new): A compound represented by the formula:



wherein:

R represents hydrogen, alkoxycarbonyl, aralkoxycarbonyl, alkylcarbonyl, cycloalkylcarbonyl, cycloalkylalkoxycarbonyl, cycloalkylalkanoyl, alkanoyl, aralkanoyl, aroyl, aryloxycarbonyl, aryloxycarbonylalkyl, alkoxyalkyl, aryloxyalkanoyl, heterocyclcarbonyl, heterocyclyloxycarbonyl, heterocyclalkanoyl, heterocyclalkoxycarbonyl, heteroaralkanoyl, heteroaralkoxycarbonyl, heteroaryloxycarbonyl, heteroaroyl, alkyl, alkenyl, cycloalkyl, aryl, aralkyl, aryloxyalkyl, heteroaryloxyalkyl, hydroxyalkyl, aminocarbonyl, aminoalkanoyl, and mono- and disubstituted aminocarbonyl and mono- and disubstituted aminoalkanoyl radicals wherein the substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, heterocycloalkylalkyl radicals, or where said aminoalkanoyl radical is disubstituted, said substituents along with the nitrogen atom to which they are attached form a heterocycloalkyl or heteroaryl radical;

R' represents hydrogen and radicals as defined for R³ or R and R' together with the nitrogen to which they are attached represent heterocycloalkyl and heteroaryl radical;

R¹ represents hydrogen, -CH₂SO₂NH₂, -CH₂CO₂CH₃, -CO₂CH₃, -CONH₂, -CH₂C(O)NHCH₃, -C(CH₃)₂(SH), -C(CH₃)₂(SCH₃), -C(CH₃)₂(S[O]CH₃), -C(CH₃)₂(S[O]₂CH₃), alkyl, haloalkyl, alkenyl, alkynyl and cycloalkyl radicals, and amino acid side chains selected from asparagine, S-methyl cysteine and methionine and the sulfoxide (SO) and sulfone (SO₂) derivatives thereof, isoleucine, allo-isoleucine, alanine, leucine, tert-leucine, phenylalanine, ornithine, histidine, norleucine, glutamine, threonine, glycine, allo-threonine, serine, aspartic acid, beta-cyano alanine and valine side chains;

R^{1'} and R^{1''} independently represent hydrogen and radicals as defined for R¹, or one of R^{1'} and R^{1''}, together with R¹ and the carbon atoms to which R¹, R^{1'} and R^{1''} are attached, represent a cycloalkyl radical;

R³ represents alkyl, haloalkyl, alkenyl, alkynyl, hydroxyalkyl, alkoxyalkyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, heterocycloalkylalkyl, aryl, aralkyl, heteroaralkyl, aminoalkyl and mono- and disubstituted aminoalkyl radicals, wherein said substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, and heterocycloalkylalkyl radicals, or in the case of a disubstituted aminoalkyl radical, said substituents along with the nitrogen atom to which they are attached, form a heterocycloalkyl or a heteroaryl radical, and thioalkyl, alkylthioalkyl and arylthioalkyl radicals and the sulfone and sulfoxide derivatives thereof;

R⁴ represents hydrogen and radicals as defined by R³;

R⁷ and R^{7'} independently represent radicals as defined for R³ and amino acid side chains selected from the group consisting of valine, isoleucine, glycine, alanine, allo-isoleucine, asparagine, leucine, glutamine, and t-butylglycine or R⁷ and R^{7'} together with the carbon atom to which they are attached form a cycloalkyl radical;

R⁸ represents cyano, hydroxyl, alkyl, alkoxy, cycloalkyl, aryl, aralkyl, heterocycloalkyl and heteroaryl radicals and radicals represented by the formulas -C(O)R¹⁶, -CO₂R¹⁶, -SO₂R¹⁶, -SR¹⁶, -CONR¹⁶R¹⁷, -CF₃ and -NR¹⁶R¹⁷;

wherein R¹⁶ and R¹⁷ independently represent hydrogen and radicals as defined for R³, or R¹⁶ and R¹⁷ together with the nitrogen to which they are attached in the formula NR¹⁶R¹⁷ represent heterocycloalkyl and heteroaryl radicals; and

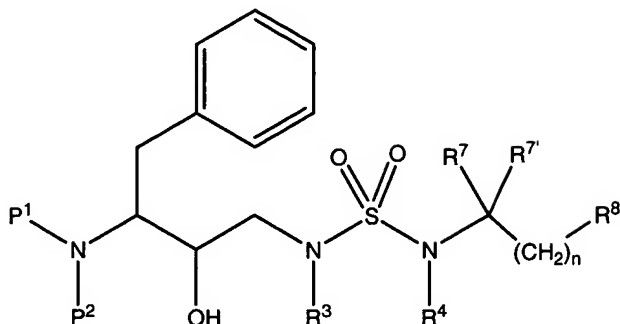
n represents an integer of from 0 to 6.

Claim 55 (new): A pharmaceutical composition comprising the compound of claim 54 and a pharmaceutically acceptable carrier.

Claim 56 (new): A method of treating a retroviral infection comprising administering an effective amount of the composition of claim 55.

Claim 57 (new): The method of claim 56 wherein the retroviral infection is an HIV infection.

Claim 58 (new): A compound represented by the formula:



wherein:

p¹ and p² independently represent hydrogen, alkoxycarbonyl, aralkoxycarbonyl, alkylcarbonyl, cycloalkylcarbonyl, cycloalkylalkoxycarbonyl, cycloalkylalkanoyl, alkanoyl, aralkanoyl, aroyl, aryloxycarbonyl, aryloxycarbonylalkyl, aryloxyalkanoyl, heterocyclylcarbonyl, heterocyclyloxycarbonyl, heterocyclylalkanoyl, heterocyclylalkoxycarbonyl, heteroaralkanoyl, heteroaralkoxycarbonyl, heteroaryloxycarbonyl, heteroaroyl, alkyl, alkenyl, cycloalkyl, aryl, aralkyl, aryloxyalkyl, heteroaryloxyalkyl, hydroxyalkyl, aminocarbonyl, aminoalkanoyl, and mono- and disubstituted aminocarbonyl and mono- and disubstituted aminoalkanoyl radicals wherein the substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, heterocycloalkylalkyl radicals, or where said aminoalkanoyl radical is disubstituted, said substituents along with the nitrogen atom to which they are attached form a heterocycloalkyl or heteroaryl radical;

R³ represents hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, hydroxyalkyl, alkoxyalkyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, heterocycloalkylalkyl, aryl, aralkyl,

heteroaralkyl, aminoalkyl and mono- and disubstituted aminoalkyl radicals, wherein said substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, and heterocycloalkylalkyl radicals, or in the case of a disubstituted aminoalkyl radical, said substituents along with the nitrogen atom to which they are attached, form a heterocycloalkyl or a heteroaryl radical, and thioalkyl, alkylthioalkyl and arylthioalkyl and the sulfone and sulfoxide derivatives thereof;

R^4 represents hydrogen and radicals as defined by R^3 ;

R^7 and $R^{7'}$ independently represent radicals as defined for R^3 ; amino acid side chains selected from the group consisting of valine, isoleucine, glycine, alanine, allo-isoleucine, asparagine, leucine, glutamine, and t-butylglycine; radicals represented by the formulas $-C(O)R^{16}$, $-CO_2R^{16}$, $-SO_2R^{16}$, $-SR^{16}$, $-CONR^{16}R^{17}$, $-CF_3$ and $-NR^{16}R^{17}$; or R^7 and $R^{7'}$ together with the carbon atom to which they are attached form a cycloalkyl radical;

R^8 represents cyano, hydroxyl, alkyl, alkoxy, cycloalkyl, aryl, aralkyl, heterocycloalkyl and heteroaryl radicals and radicals represented by the formulas $-C(O)R^{16}$, $-CO_2R^{16}$, $-SO_2R^{16}$, $-SR^{16}$, $-CONR^{16}R^{17}$, $-CF_3$ and $-NR^{16}R^{17}$;

wherein R^{16} and R^{17} independently represent hydrogen and radicals as defined for R^3 , or R^{16} and R^{17} together with the nitrogen to which they are attached in the formula $NR^{16}R^{17}$ represent heterocycloalkyl and heteroaryl radicals; and

n represents an integer of from 0 to 6.

Claim 59 (new): A pharmaceutical composition comprising the compound of claim 58 and a pharmaceutically acceptable carrier.

Claim 60 (new): A method of treating a retroviral infection comprising administering an effective amount of the composition of claim 59.

Claim 61 (new): The method of claim 60 wherein the retroviral infection is an HIV infection.